

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An apparatus for reading and/or writing data from and /or onto a data carrier, said data carrier containing wobbled tracks, said apparatus ~~having comprising:~~

_____ scanning means for scanning said tracks~~;~~;

_____ detection means for detecting at least two elementary signals when scanning said tracks~~;~~;

_____ wobble recovery means for generating a wobble signal from said at least two elementary signals~~;~~; and

_____ wobble processing means for filtering said at least two elementary signals with at least an adaptive filter and for generating an improved wobble signal by subtracting said filtered elementary signals from said wobble signal~~;~~

said apparatus further comprising:

_____ data recovery means for generating a data signal from said at least two elementary signals, wherein said adaptive filter uses filtering coefficients chosen so as to minimize the cross-correlation between said improved wobble signal and said data signal, and wherein said filtering coefficients are updated by using an iterative gradient algorithm minimizing a cost function having an instantaneous value equal to the instantaneous value of the squared product of said improved wobble signal and said data signal.

2-3. (Cancelled).

4. (Currently Amended) ~~An~~The apparatus as claimed in claim 1,
wherein said adaptive filter uses filtering coefficients chosen so
as to minimize the difference between a scaled version of the
improved wobble signal and a reference wobble signal reconstructed
5 on the basis of the generated wobble signal.

5. (Currently Amended) An optical unit ~~having comprising:~~
_____scanning means for scanning wobbled tracks of a data
carrier,_____

_____detection means for detecting at least two elementary
5 signals when scanning said tracks,_____

_____wobble recovery means for generating a wobble signal from
said at least two elementary signals,_____and

_____wobble processing means for filtering said at least two
elementary signals with at least an adaptive filter and for
10 generating an improved wobble signal (IPP) by subtracting said
filtered elementary signals from said wobble signal,_____

said optical unit further comprising:

_____data recovery means for generating a data signal from said
at least two elementary signals, wherein said adaptive filter uses
15 filtering coefficients chosen so as to minimize the cross-
correlation between said improved wobble signal and said data
signal, and wherein said filtering coefficients are updated by
using an iterative gradient algorithm minimizing a cost function

20 having an instantaneous value equal to the instantaneous value of
the squared product of said improved wobble signal and said data
signal.

6. (Cancelled).

7. (Currently Amended) ~~An~~The optical unit as claimed in claim
5, wherein said adaptive filter uses filtering coefficients chosen
so as to minimize the difference between the improved wobble signal
and a reference wobble signal reconstructed on the basis of the
5 generated wobble signal.

8. (Currently Amended) A wobble processing method for
processing a wobble signal generated from at least two elementary
signals detected by scanning of a wobbled track of a data carrier,
comprising the steps of:

5 ~~_____ a filtering step for filtering said at least two~~
elementary signals with at least an adaptive filter, ~~and~~
~~_____ a subtracting step for subtracting said filtered~~
elementary signals from said wobble signal, thereby generating an
improved wobble signal.

10 wherein said filtering step uses filtering coefficients
chosen so as to minimize the cross-correlation between said
improved wobble signal and a data signal generated from said at
least two elementary signals.

and wherein said filtering coefficients are updated by
using an iterative gradient algorithm minimizing a cost function
having an instantaneous value equal to the instantaneous value of
the squared product of said improved wobble signal and said data
signal.

9. (Cancelled).

10. (Currently Amended) ~~A~~The wobble processing method as
claimed in claim 8, wherein said filtering step uses filtering
coefficients chosen so as to minimize the difference between a
scaled version of the improved wobble signal and a reference wobble
signal reconstructed on the basis of the generated wobble signal.

11. (Currently Amended) A computer-readable medium having a
program comprising instructions for implementing a wobble
processing method as claimed in ~~one of claims~~claim 8 ~~to or~~ 10, when
said program is executed by a processor.

12. (Currently Amended) ~~An~~The apparatus as claimed in ~~elaims~~
claim 1 or 2 comprising, wherein said apparatus further comprises
sampling means for sampling said at least two elementary signals at
a frequency lower than the data bit rate.